

WHAT IS CLAIMED IS:

1. A product provided with a coding pattern which comprises: a grid formation comprising a first plurality of grid points; and a second plurality of marks, each grid point being assigned at least one mark and representing a value by way of the relative location of said at least one mark.

2. The product of claim 1, wherein first and second combinations of said grid points code a first and a second position, respectively, in at least one direction on the product, the second combination containing a portion of the grid points of the first combination.

3. The product of claim 2, wherein each of the first and second combinations represents at least one binary code.

4. The product of claim 3, wherein said at least one binary code is utilized for determination of the first and second positions on the product.

5. The product of claim 1, wherein each combination of grid points in accordance with a predetermined

combination rule represents at least two sets of digits, one of said sets defining a first position coordinate on the product.

6. The product of claim 5, wherein another one of said sets defines a second position coordinate on the product.

7. The product of claim 1, wherein said value is given by a displacement of the center of gravity of the mark relative to the grid point.

8. The product of claim 7, wherein said value is given by a displacement of the center of gravity of the mark in one of a number of predetermined directions from the grid point.

9. The product of claim 8, wherein said predetermined directions coincide with grid lines of the grid formation.

10. The product of claim 7, wherein said displacement is essentially equal for all marks.

11. The product of claim 10, wherein said displacement is $1/4$ to $1/8$ of the distance between the grid points.

12. The method of claim 7, wherein the effective diameter of each assigned mark is about 50% to about 240% of the displacement of the mark relative to the grid point.

13. The product of claim 1, wherein all the marks have an essentially identical appearance.

14. The product of claim 1, wherein the marks are approximately circular, triangular or rectangular.

15. The product of claim 1, wherein the grid formation is at least partly marked physically on the product to indicate the grid points.

16. The product of claim 1, wherein the coding pattern lacks reference marks for defining the grid formation.

17. The product of claim 1, wherein the grid formation is virtual.

18. The product of claim 1, wherein the grid points is identifiable by means of the marks only.

19. The product of claim 1, wherein the grid formation comprises a set of tiled cell units, each cell unit being defined by at least three grid points, and each grid point being part of at least three cell units.

20. The product of claim 1, wherein the distance between the grid points is about 250 μm to about 300 μm .

21. The product of claim 1, wherein the grid formation is a rectangular grid.

22. The product of claim 1, wherein the marks are optically readable.

23. The product of claim 1, wherein the marks are readable by infrared light.

24. The product of claim 1, wherein the grid formation is optically readable.

25. The product of claim 1, wherein the grid formation is readable by infrared light.

26. The product of claim 1, wherein the grid formation defines a coded surface area of the product, the collective surface area of the second plurality of marks constituting 0.25% to 20% of the coded surface area.

27. The product of claim 1, which comprises a sheet of paper.

28. A method for determining a set of data values based on a number of marks in a subset of a coding pattern which comprises: a grid formation comprising a first plurality of grid points; and a second plurality of marks, each grid point being assigned at least one mark and representing a value by way of the relative location of said at least one mark, said method comprising: detecting the grid points in the subset; detecting the marks in the subset; associating each detected mark with one of the detected grid points; and determining the location of each detected mark relative to the thus-associated grid point.

29. The method of claim 28, in which determining the location comprises: searching for the mark at a predetermined distance from one of the detected grid points.

30. The method of claim 28, in which determining the location comprises: calculating the center of gravity of each mark.

31. The method of claim 28, further comprising: determining a data value for each grid point based on the location of each associated mark relative to the grid point.

32. The method of claim 31, further comprising: forming at least two sets of digits, by separating each data value into at least two digits; and calculating a position of said subset in said coding pattern based on at least one of said sets of digits.

33. The method of claim 32, further comprising: calculating a first position coordinate based on one of said sets of digits; and calculating a second position coordinate based on another one of said sets of digits.

34. The method of claim 28, further comprising:
deriving, based on the data values, the location of the
subset among a plurality of partially overlapping subsets
in the coding pattern.

35. An apparatus for determining a set of data
values based on a number of marks in a subset of a coding
pattern which comprises: a grid formation comprising a
first plurality of grid points; and a second plurality of
marks, each grid point being assigned at least one mark
and representing a value by way of the relative location
of said at least one mark, said apparatus comprising:
means for detecting the grid points in the subset; means
for detecting the marks in the subset; means for
associating each detected mark with one of the detected
grid points; and means for determining the location of
each detected mark relative to the thus-associated grid
point.

36. The apparatus of claim 35, wherein said means
for determining comprises: means for searching for the
mark at a predetermined distance from one of the detected
grid points.

37. The apparatus of claim 35, wherein said means for determining comprises: means for calculating the center of gravity of each mark.

38. The apparatus of claim 35, further comprising: means for determining a data value for each grid point based on the location of each associated mark relative to the grid point.

39. The apparatus of claim 38, further comprising: means for forming at least two sets of digits, by separating each data value into at least two digits; and means for calculating a position of said subset in said coding pattern based on at least one of said sets of digits.

40. The apparatus of claim 39, further comprising: means for calculating a first position coordinate based on one of said sets of digits; and means for calculating a second position coordinate based on another one of said sets of digits.

41. The apparatus of claim 35, further comprising: means for deriving, based on the data values, the

location of the subset among a plurality of partially overlapping subsets in the coding pattern.

42. A method for storing values in a machine readable format on a surface, said method comprising: encoding each of said values in a corresponding symbol so as to generate a set of symbols that vary in accordance with said values, the value of each symbol being represented by the location of at least one mark relative to an associated nominal position; and writing said set of symbols in a predetermined grid formation on the surface, the grid formation comprising a plurality of grid points.

43. The method of claim 42, in which said writing further comprises: writing the symbols with the nominal positions coinciding with the grid points.

44. The method of claim 42, in which said writing further comprises: writing the symbols on the surface in first and second combinations that code a first and a second position, respectively, in at least one direction on the surface, the second combination containing a portion of the symbols of the first combination.

45. The method of claim 44, in which each of the first and second combinations represents at least one binary code.

46. The method of claim 45, in which the first and second positions on the surface is determinable based on the binary code.

47. The method of claim 42, in which said writing further comprises: writing the symbols in predetermined combinations on the surface such that each predetermined combination represents at least two sets of digits, one of said sets defining a first position coordinate on the surface.

48. The method of claim 47, in which each symbol represents one digit in each set of digits.

49. The method of claim 47, in which another one of said sets defines a second position coordinate on the surface.

50. The method of claim 42, in which said value is represented by a displacement of the center of gravity of the mark relative to the nominal position.

51. The method of claim 50, in which said value is represented by a displacement of the center of gravity of the mark in one of a number of predetermined directions from the nominal position.

52. The method of claim 51, in which said predetermined directions coincide with grid lines of the grid formation.

53. The method of claim 42, further comprising writing at least part of the grid formation on the surface to indicate the grid points.

54. The method of claim 42, in which said values represent a position code which codes a plurality of positions on the surface, each position being coded by means of a combination of symbols.